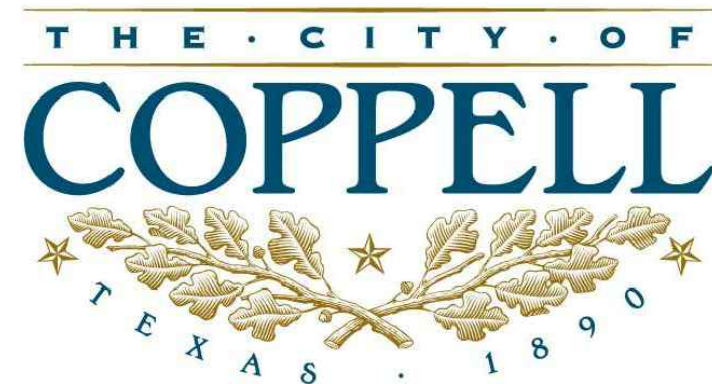


CITY OF COPPELL

DALLAS / DENTON COUNTY, TEXAS



STANDARD CONSTRUCTION DETAILS

REVISED SEPTEMBER 17, 2020

CITY OF COPPELL ORDINANCE # 2006-1129

GENERAL NOTES

1. THESE STANDARD CONSTRUCTION DETAIL DRAWINGS ARE BASED ON THE STANDARD DRAWINGS PUBLISHED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG) IN 1996. IN ADDITION TO NUMEROUS LOCAL EXCEPTIONS, MANY DETAILS IN THIS SET ARE UNIQUE TO THE CITY OF COPPELL. THESE STANDARD CONSTRUCTION DETAIL DRAWINGS SUPERSEDE ALL OTHER VERSIONS OF NCTCOG AND CITY OF COPPELL STANDARD CONSTRUCTION DETAILS. THE CITY OF COPPELL RESERVES THE RIGHT TO UPDATE, MODIFY OR SUPERSEDE THESE STANDARD CONSTRUCTION DETAIL DRAWINGS WITHOUT NOTICE. THE CITY OF COPPELL RESERVES THE RIGHT TO REQUIRE METHODS AND MATERIALS CONTRADICTORY TO THOSE SHOWN IN THESE DETAILS ON A CASE BY CASE BASIS.
2. THE CITY OF COPPELL HAS ADOPTED THE "Standard Specifications for Public Works Construction", 4TH EDITION, AS ITS BASIC CONSTRUCTION SPECIFICATIONS. THIS DOCUMENT IS AVAILABLE FOR PURCHASE FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG), 616 SIX FLAGS DR., SUITE 200, P.O. BOX 5888, ARLINGTON TEXAS 76005-5888, PH. 817/640-3300, nctcog.org. THE CITY OF COPPELL RESERVES THE RIGHT TO MAKE LOCAL EXCEPTIONS TO ANY STANDARD SPECIFICATION.
3. WHERE THE STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS DO NOT ADDRESS A SPECIFIC ITEM ADEQUATELY, REFER TO THE APPROPRIATE STANDARDS PUBLISHED BY THE TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT), THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.), TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (T.C.E.Q.), TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (T.P.D.E.S.) GENERAL PERMIT, AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (A.A.S.H.T.O.), ASTM International AND THE ENVIRONMENTAL PROTECTION AGENCY (E.P.A).
4. LOCAL, STATE AND FEDERAL ORDINANCES WHICH REGULATE DEVELOPMENT IN THE CITY OF COPPELL ARE:
 - a. CITY OF COPPELL SUBDIVISION ORDINANCE.
 - b. CITY OF COPPELL FLOODPLAIN ORDINANCE.
 - c. CITY OF COPPELL IMPACT FEE ORDINANCE.
 - d. CITY OF COPPELL EROSION CONTROL ORDINANCE.
 - e. CITY OF COPPELL ZONING ORDINANCE.
 - f. CITY OF COPPELL RIGHT-OF-WAY MANAGEMENT ORDINANCE.
 - g. CITY OF COPPELL TREE ORDINANCE
 - h. CITY OF COPPELL NOISE ORDINANCE
 - i. CITY OF COPPELL CITY-WIDE STORM WATER MANAGEMENT STUDY
 - j. TEXAS ACCESSIBILITY STANDARDS (T.A.S.)
 - k. AMERICANS WITH DISABILITIES ACT (A.D.A.)
 - △ l. TxDot PED 18 PEDESTRIAN FACILITIES CURB RAMPS

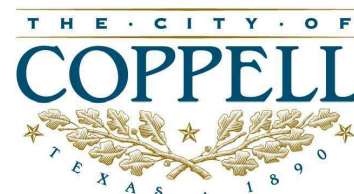


TABLE OF CONTENTS

Division 1000 EROSION & SEDIMENT CONTROL

1010	STRAW BALE DIKE
1020	SILT FENCE
1030	INTERCEPTOR SWALE
1040	DIVERSION DIKE
1050	TRIANGULAR SEDIMENT FILTER DIKE
1060	ROCK BERM
1070	STABILIZED CONSTRUCTION ENTRANCE
1080	SANDBAG BERM
1090	STONE OUTLET SEDIMENT TRAP
1100	SEDIMENT BASIN
1110	PIPE SLOPE DRAIN
1120	INLET PROTECTION <u>Grate Inlet Filter Barrier</u>
1130	INLET PROTECTION <u>Block and Gravel</u>
1135	INLET PROTECTION <u>Wattle Filter</u>
1140	INLET PROTECTION <u>Wire Mesh and Gravel</u>
1150	INLET PROTECTION <u>Excavated Impoundment</u>
1160	EROSION CONTROL MATTING

Division 2000 PAVEMENT SYSTEMS

2010	REINFORCED CONCRETE PAVEMENT <u>Six-Lane Divided Thoroughfare</u>
2020	REINFORCED CONCRETE PAVEMENT <u>Four-Lane Divided Thoroughfare</u>
2025	REINFORCED CONCRETE PAVEMENT <u>Dedicated Left Turn Lane</u>
2030	REINFORCED CONCRETE PAVEMENT <u>2- & 4-Lane Undivided Thoroughfare</u>
2035	REINFORCED CONCRETE PAVEMENT <u>28' B-B Residential Street</u>
2040	REINFORCED CONCRETE PAVEMENT <u>Alleys</u>
2050	REINFORCED CONCRETE PAVEMENT <u>Pavement Joints</u>
2060	REINFORCED CONCRETE PAVEMENT <u>Transverse Joint Spacing</u>
2070	REINFORCED CONCRETE PAVEMENT <u>Street Headers</u>
2080	NOT USED

Division 2000 PAVEMENT SYSTEMS Continued...


2090	NOT USED	2195	PAVEMENT SYSTEMS GENERAL NOTES
2100	NOT USED	2200	SUBDRAINS <u>Pavement Subgrade</u>
2110	HOT MIX ASPHALTIC CONCRETE PAVEMENT <u>Two-Lane Undivided Thoroughfare</u>	2210	ALLEY GEOMETRICS <u>Type "A" and Type "B"</u>
2120	CONCRETE CURB AND GUTTER <u>Integral and Separate</u>	2220	ALLEY GEOMETRICS <u>Type "C" and Type "D"</u>
2130	MEDIAN ISLAND PAVEMENT <u>Left Turn Lane with Sloped Nose</u>	2230	ALLEY GEOMETRICS <u>Type "E" and Type "F"</u>
2140	MEDIAN ISLAND PAVEMENT <u>Median Island with Sloped Nose</u>	2240	ALLEY GEOMETRICS <u>Type "G" and Type "H"</u>
2150-1	DRIVEWAY APPROACH <u>Type "A"</u>	2250	ALLEY GEOMETRICS <u>Type "J"</u>
2150-2	DRIVEWAY APPROACH <u>Type "A"</u>	2260	ALLEY INTERSECTION <u>Proposed to Existing</u>
2155-1	DRIVEWAY APPROACH <u>Type "B"</u>	2270	GUARD RAIL AND BARRICADING NOTE
2155-2	DRIVEWAY APPROACH <u>Type "B"</u>	2280	TRAFFIC CONTROL NOTE
2160-1	ALLEY APPROACH <u>Radius Return Type</u>	2290	FIRE LANE AND PARKING LOT <u>Reinforced Concrete</u>
2160-2	ALLEY APPROACH <u>Radius Return Type</u>	2300	FIRE LANE AND PARKING LOT <u>Hot Mix Asphaltic Concrete</u>
2165-1	ALLEY APPROACH REPLACEMENT <u>Flared Type</u>	2310	FIRE LANE AND PARKING LOT <u>Type "A" and Type "B" Turnaround</u>
2165-2	ALLEY APPROACH REPLACEMENT <u>Flared Type</u>	2320	FIRE LANE AND PARKING LOT <u>Fire Lane Marking</u>
2170	REINFORCED CONCRETE SIDEWALK <u>Joints and Spacing</u>	2330	POURED CONCRETE BASE <u>Bollard and Direct Bury Pole</u>
2180	REINFORCED CONCRETE RETAINING WALL <u>Integral with Sidewalk</u>	 2335	POURED CONCRETE BASE <u>Square and Round Sign Post</u>
2185	ACCESSIBLE ROUTES, RAMPS AND CROSSWALKS NOTE	2340	TRAFFIC SIGNALS <u>Collector Streets and Thoroughfares</u>
2190	COMMERCIAL DRIVEWAY DECORATIVE PAVING <u>Stamped Concrete</u>	2350	PAVEMENT SYSTEMS TESTING REQUIREMENTS



TABLE OF CONTENTS

Division 3000 GENERAL UNDERGROUND CONDUIT

3010	EMBEDMENT <u>Class "A" and "A-1"</u>
3020	EMBEDMENT <u>Storm Drain</u>
3030	EMBEDMENT <u>Water Main</u>
3040	NOT USED
3050	EMBEDMENT <u>Sanitary Sewer</u>
3060	EMBEDMENT <u>Class "G" and "G-1"</u>
3070	PAVEMENT CUTS <u>Removal and Replacement</u>
3080	NOT USED
3090	ENCASEMENT <u>Roadway Crossing Bore</u>
3095	GENERAL UNDERGROUND CONDUIT <u>Irrigation Sleeving and Electrical Conduit</u>
3100	GENERAL UNDERGROUND CONDUIT <u>General Notes and Testing</u>

Division 4000 WATER DISTRIBUTION

4010-1	HORIZONTAL THRUST BLOCK <u>At Pipe Bend</u>
4010-2	HORIZONTAL THRUST BLOCK <u>At Pipe Bend</u>
4020	HORIZONTAL THRUST BLOCK <u>At Tees and Plugs</u>
4030	VERTICAL THRUST BLOCK <u>At Pipe Bend</u>
4040	THRUST BLOCK <u>General Notes</u>
4050	GATE VALVE 16" AND SMALLER <u>Installation</u>
4060	NOT USED
4070-1	VAULT CONSTRUCTION <u>Vertical Gate Valve Larger than 16"</u>
4070-2	VAULT CONSTRUCTION <u>Vertical Gate Valve Larger than 16"</u>
4080	NOT USED

Division 4000 WATER DISTRIBUTION Continued...

4090	AIR RELEASE VALVE <u>Type 1</u>
4100-1	AIR RELEASE VALVE <u>Type 2</u>
4100-2	AIR RELEASE VALVE <u>Details</u>
4110	BLOW-OFF VALVE <u>Type 1</u>
4120	FIRE HYDRANT <u>Installation</u>
4130	WATER SERVICE INSTALLATION <u>3/4" Meter – Residential Domestic</u>
4135	WATER SERVICE INSTALLATION <u>3/4" Meter – Irrigation or Commercial Domestic</u>
4140	WATER SERVICE INSTALLATION <u>1" Meter – Residential Domestic</u>
4145	WATER SERVICE INSTALLATION <u>1" Meter – Irrigation or Commercial Domestic</u>
4150	WATER SERVICE INSTALLATION <u>1-1/2" or 2" Meter – Domestic</u>
4155	WATER SERVICE INSTALLATION <u>1-1/2" or 2" Meter – Irrigation</u>
4160	DETECTOR CHECK VALVE INSTALLATION <u>3" to 6" Service</u>
4162	DOMESTIC AND IRRIGATION SERVICE INSTALLATION <u>3" to 6" Service</u>
4165	DETECTOR CHECK VALVE INSTALLATION <u>8" to 12" Service</u>
4170	FIRE DEPARTMENT CONNECTION (F.D.C.) <u>Located Outside Paving</u>
4175	FIRE DEPARTMENT CONNECTION (F.D.C.) <u>Located Inside Paving</u>
4180	BUILDING FIRE SPRINKLER SYSTEM <u>Connection to Private Water Main</u>
4190	DETECTOR CHECK VAULT <u>Pre-Cast Construction</u>
4195	DETECTOR CHECK VAULT <u>Cast-In-Place Construction</u>
4200	WATER MAIN ADJUSTMENT <u>at Storm Drain Crossing</u>
4210	WATER MAIN ADJUSTMENT <u>at Sanitary Sewer Crossing</u>
4220	VALVE LOCATION AND IDENTIFICATION <u>Curb Lettering and Color Coding</u>
4225	WATER VALVE AND WATER LINE ABANDONMENT <u>Inside and Outside of Pavement</u>
4230	WATER DISTRIBUTION <u>Testing Requirements</u>



TABLE OF CONTENTS

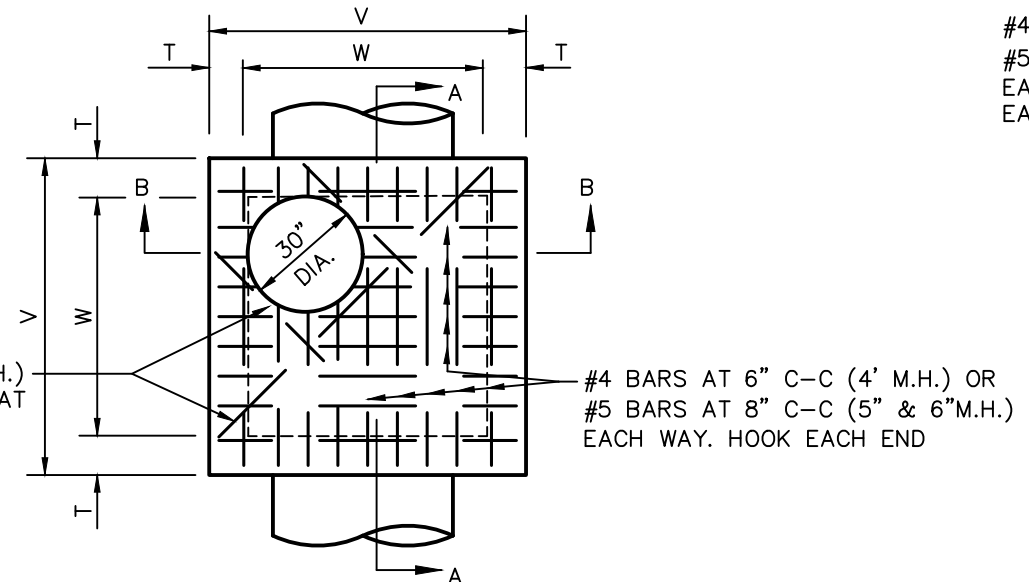
Division 5000 SANITARY SEWER

5010	SANITARY SEWER <u>Main Tie-in at Cleanout or Stubout</u>
5020	SANITARY SEWER <u>Manhole: Pre-Cast</u>
5030	SANITARY SEWER <u>Manhole: Cast-in-Place</u>
5040	NOT USED
5050	SANITARY SEWER <u>Manhole: Pressure Type</u>
5060	SANITARY SEWER <u>Manhole: Vented Type</u>
5070	SANITARY SEWER <u>Manhole: Outside Drop Connection</u>
5080	SANITARY SEWER <u>Manhole: Inside Drop Connection</u>
5090	SANITARY SEWER <u>Manhole: Line Intersection</u>
5100	SANITARY SEWER <u>Manhole: False Bottom</u>
5105	SANITARY SEWER <u>Wastewater Access Device (W.A.D.)</u>
5110	SANITARY SEWER <u>6" Commercial Cleanout</u>
△ 5115	SANITARY SEWER <u>6" Commercial Inline Cleanout</u>
5120	SANITARY SEWER <u>Standard Service Connection</u>
5130	SANITARY SEWER <u>Deep Service Connection</u>
5140	SANITARY SEWER <u>Lateral Replacement Prior to Paving</u>
5150	SANITARY SEWER <u>Manhole Abandonment In and Out of Paving</u>
5160	SANITARY SEWER <u>Aerial Crossing</u>
5170	MANHOLE AND CLEANOUT LOCATION AND IDENTIFICATION <u>Curb Lettering and Color Coding</u>
5180	SANITARY SEWER <u>General Notes and Testing</u>

Division 6000 STORM DRAIN

6010	STORM DRAIN <u>Manhole 4', 5', or 6' Square</u>
6020-1	STORM DRAIN <u>Curb Inlet: 5', 10', 15' or 20' Opening</u>
6020-2	STORM DRAIN <u>Curb Inlet: 5', 10', 15' or 20' Opening</u>
6020-3	STORM DRAIN <u>Curb Inlet: Rebar, Manhole Frame and Cover</u>
6020-4	STORM DRAIN <u>Curb Inlet: Bill of Reinforcing Steel</u>
6020-5	STORM DRAIN <u>Curb Inlet: Summary of Quantities</u>
6030-1	STORM DRAIN <u>Recessed Curb Inlet: 5', 10', 15' or 20'</u>
6030-2	STORM DRAIN <u>Recessed Curb Inlet: 5', 10', 15' or 20'</u>
6030-3	STORM DRAIN <u>Recessed Curb Inlet: Throat and Manhole Cover</u>
6030-4	STORM DRAIN <u>Recessed Curb Inlet: General Notes</u>
6040	STORM DRAIN <u>Drop Inlet</u>
6050	STORM DRAIN GRATE INLET NOTE
6060	STORM DRAIN <u>Full Channel Lining</u>
6070	STORM DRAIN <u>Vertical Headwall</u>
6080	STORM DRAIN <u>Sloping Headwall</u>
6085	STORM DRAIN <u>Pipe Collar and Field Connection</u>
6090	STORM DRAIN <u>General Notes and Testing</u>

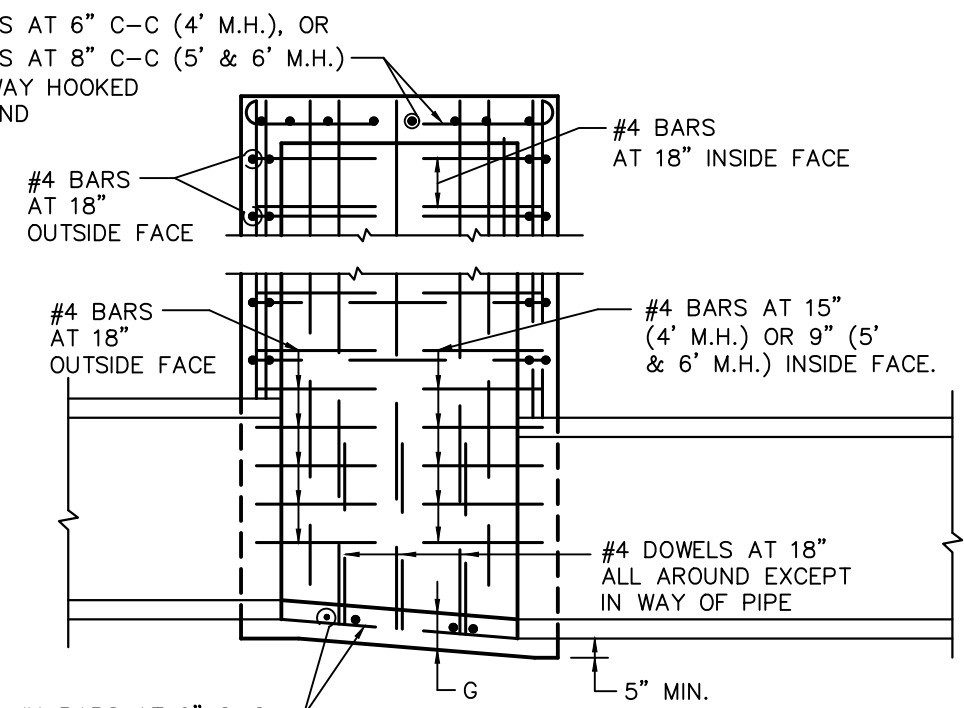




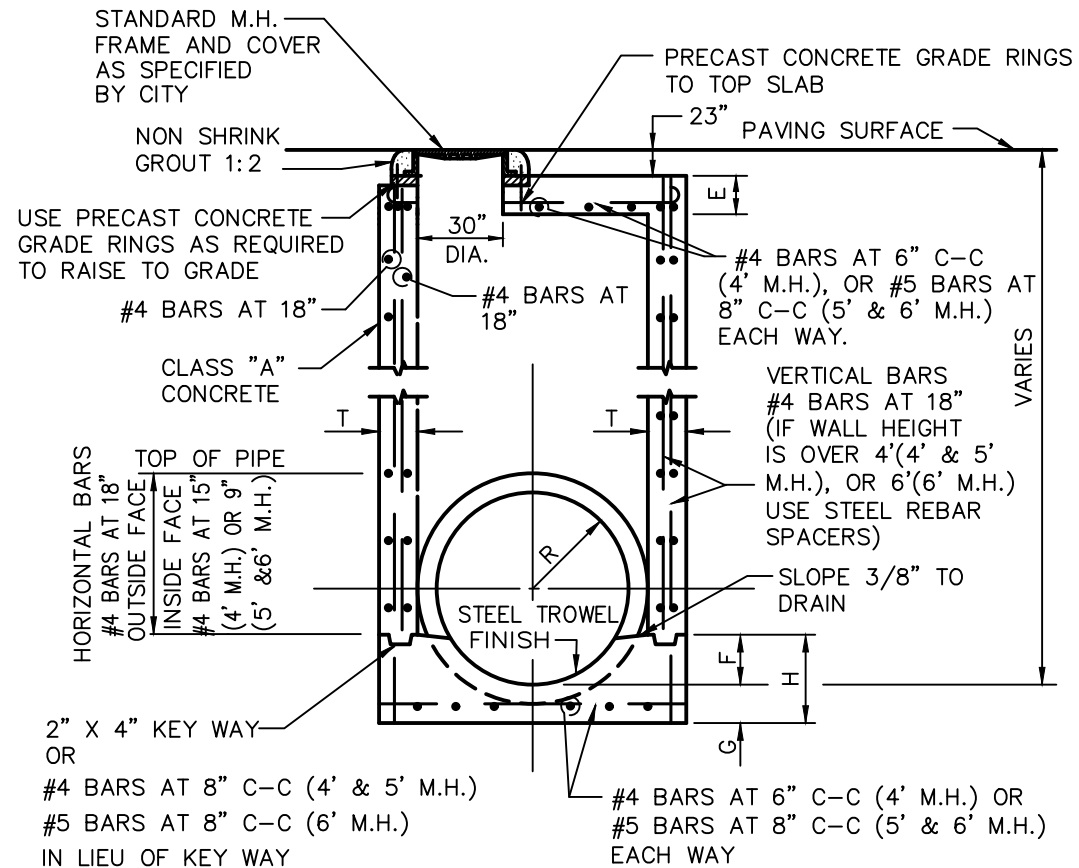
PLAN
N.T.S.

M.H. SIZE(W)	V	T	E	F	G	H
4'	5'-4"	8"	6"	9"	6"	1'-3"
5'	6'-4"	8"	6"	12"	8"	1'-8"
6'	7'-6"	9"	9"	16"	10"	2'-2"

TABLE OF DIMENSIONS
N.T.S.

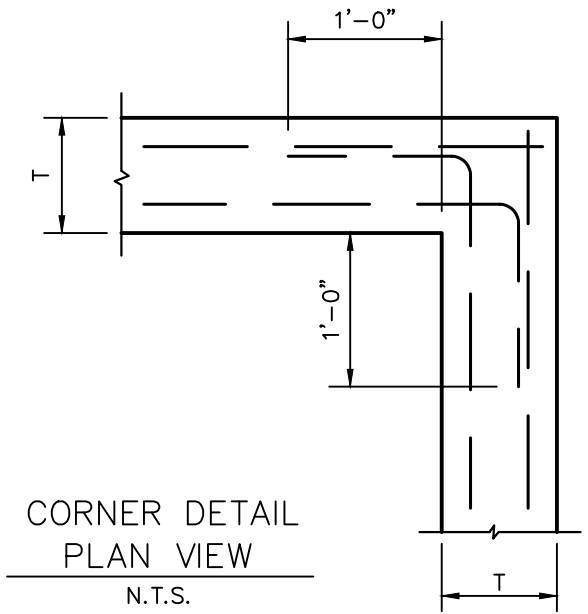


SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

- NOTES:
1. SLOPE INVERT OF MANHOLE AS INDICATED ON PLAN-PROFILE SHEET.
 2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACE SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
 3. CONCRETE SHALL BE CLASS "A".
 4. OUTER WALL OF STRUCTURE SHALL BE CONSTRUCTED USING FORMS, NOT THE VERTICAL WALL OF THE EXCAVATION.



CORNER DETAIL
PLAN VIEW
N.T.S.

North Central Texas Council of Governments



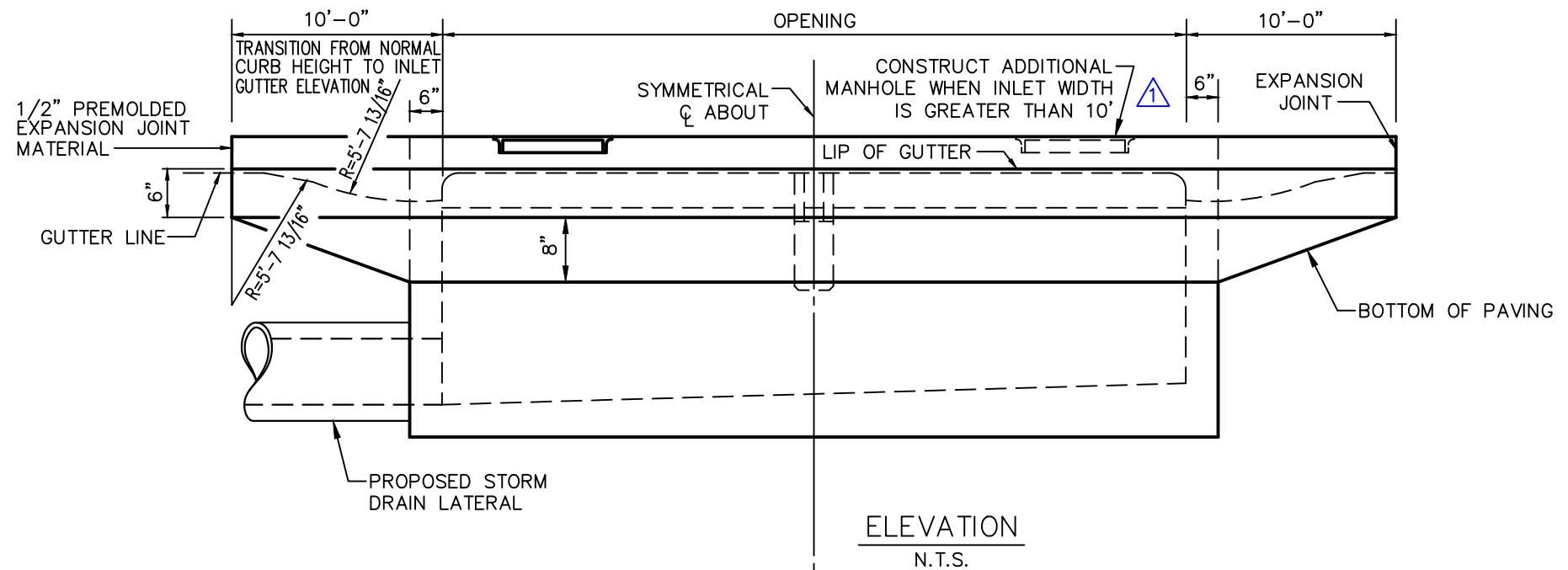
NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE



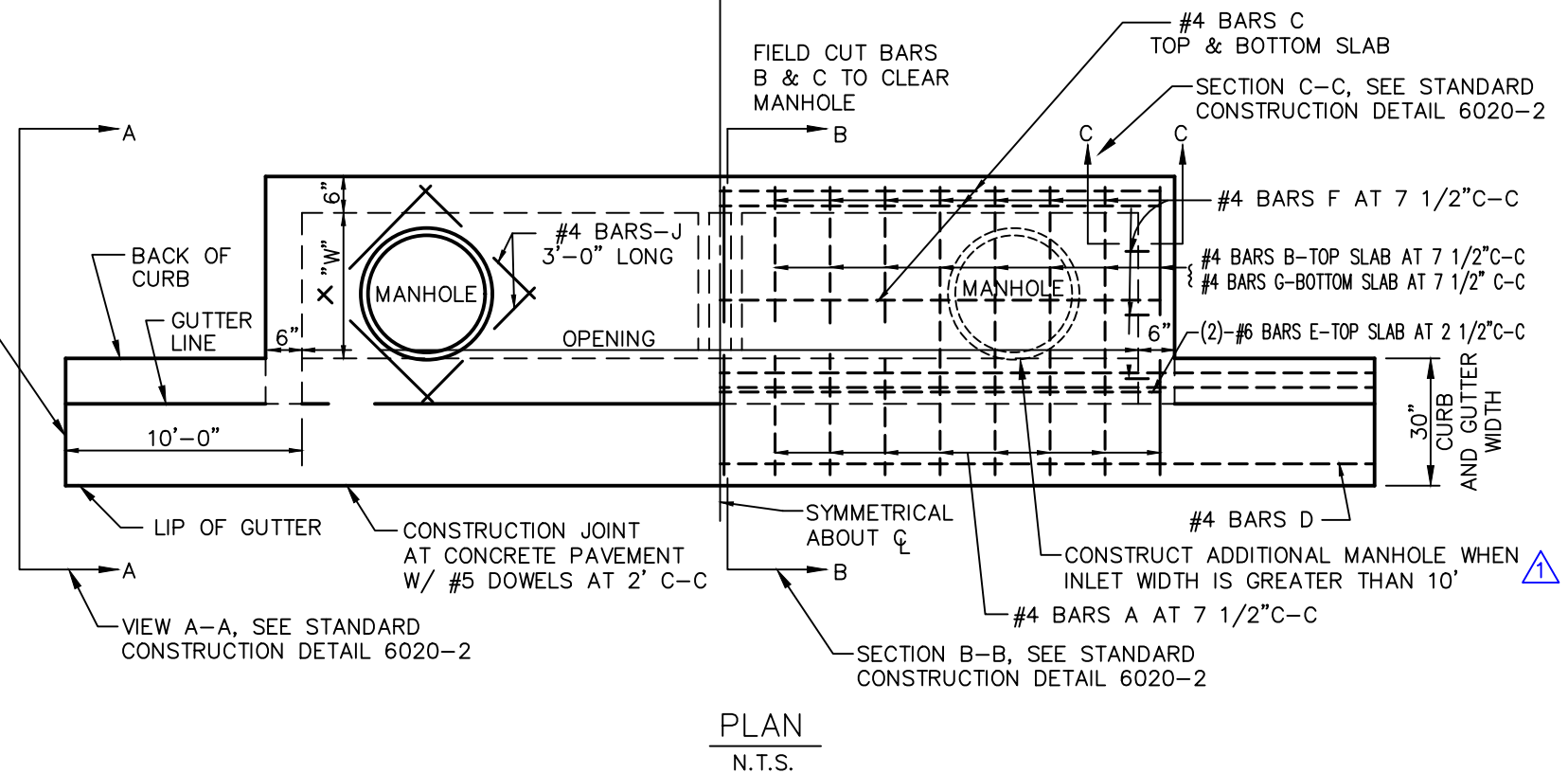
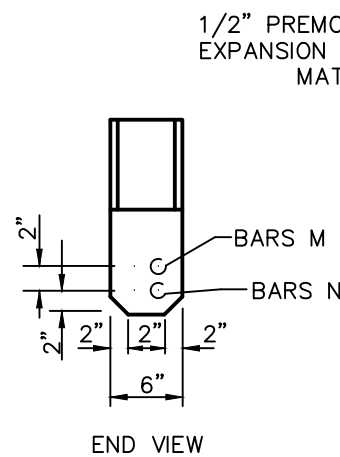
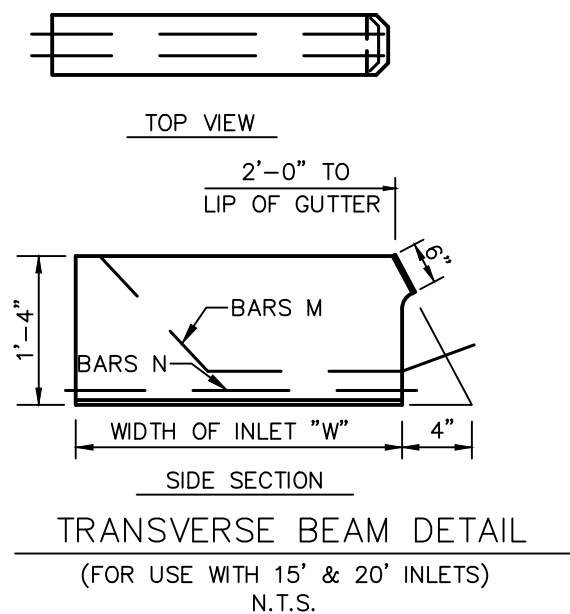
STANDARD CONSTRUCTION DETAILS
STORM DRAIN
MANHOLE 4', 5' OR 6' SQUARE
CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
501., 702.
STANDARD DETAIL
6010



NOTE:

1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE CITY.
2. INLETS OVER 10' IN WIDTH SHALL HAVE A MANHOLE OPENING AT EACH END.



North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.



ADD NOTE 2 AND ADDITIONAL MANHOLES.

LOCAL EXCEPTION

SWL

BY

APR. '20

DATE



STANDARD CONSTRUCTION DETAILS

STORM DRAIN

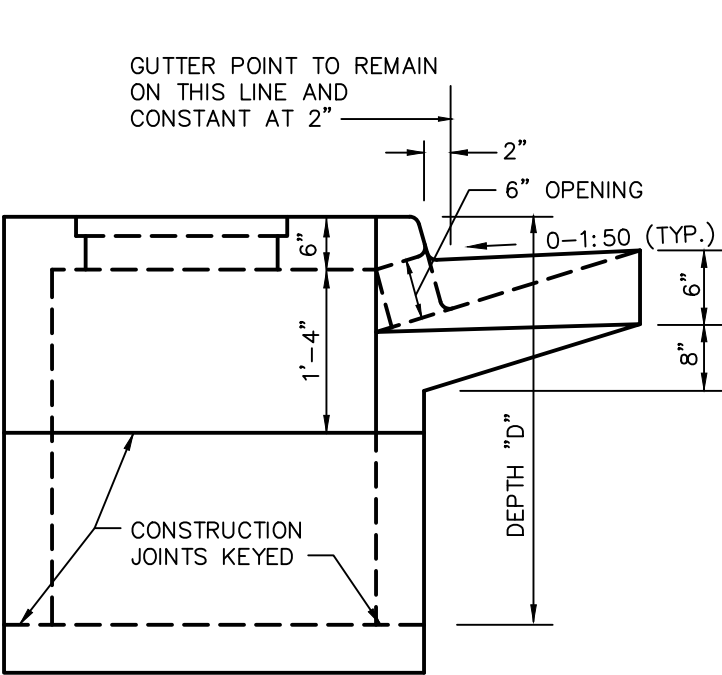
CURB INLET: 5', 10', 15' OR 20' OPENING

CITY OF COPPELL DALLAS COUNTY, TEXAS

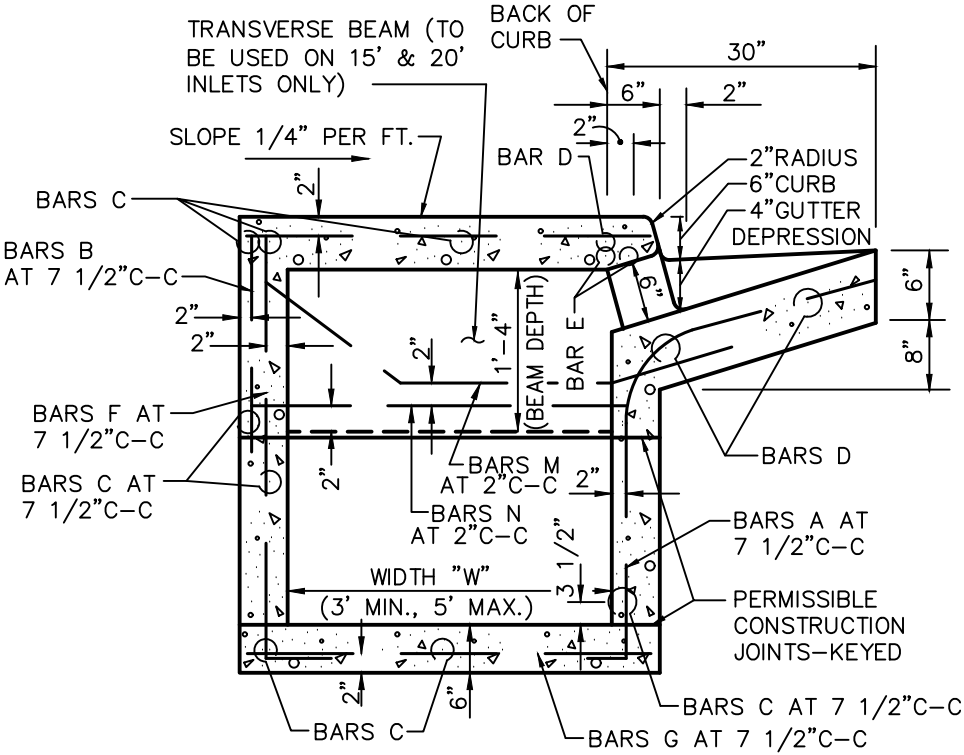
STD. SPEC.
REFERENCE
501., 702.

STANDARD DETAIL

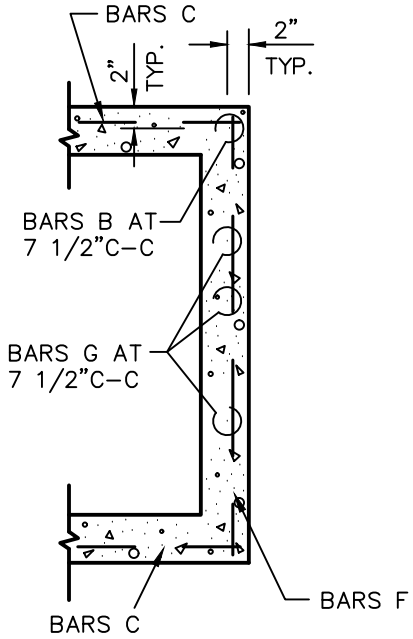
6020-1



VIEW A-A
N.T.S.



SECTION B-B
N.T.S.



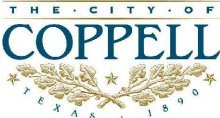
SECTION C-C
N.T.S.

- GENERAL NOTES:**
1. ALL CONCRETE SHALL BE CLASS "A" CONCRETE.
 2. REINFORCING BARS SHALL BE STANDARD GRADE STEEL, DEFORMED REINFORCING BARS OF A DIAMETER AND LENGTH AS SHOWN.
 3. CHAMFER ALL EXPOSED CORNERS 3/4" EXCEPT WHERE OTHERWISE NOTED.
 4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
 5. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMMODATE STORM DRAIN PIPE.
 6. RING AND COVER SHALL BE APPROVED BY THE CITY AND INSTALLED BY THE CONTRACTOR.
 7. OUTER WALL OF STRUCTURE SHALL BE CONSTRUCTED USING FORMS, NOT THE VERTICAL WALL OF THE EXCAVATION.

North Central Texas Council of Governments



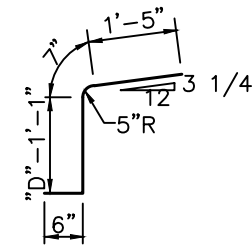
NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.



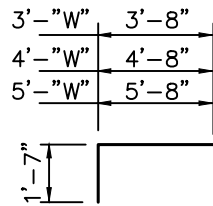
STANDARD CONSTRUCTION DETAILS
STORM DRAIN
CURB INLET: 5', 10', 15' OR 20' OPENING
CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
501., 702.
STANDARD DETAIL
6020-2

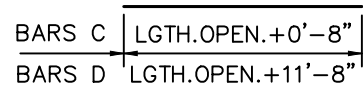
NO.	LOCAL EXCEPTION	BY	DATE



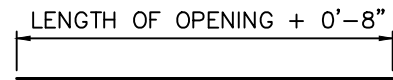
#4 BARS A
N.T.S.



#4 BARS B
N.T.S.



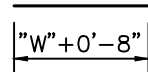
#4 BARS C & D
N.T.S.



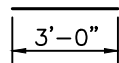
#4 BARS E
N.T.S.



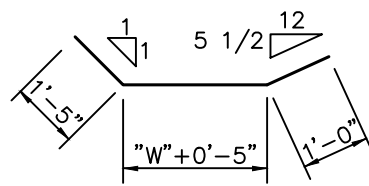
#4 BARS F
N.T.S.



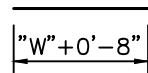
#4 BARS G
N.T.S.



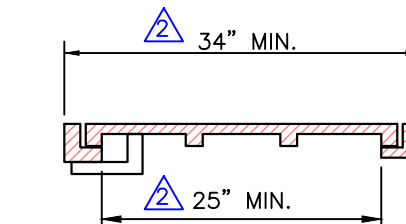
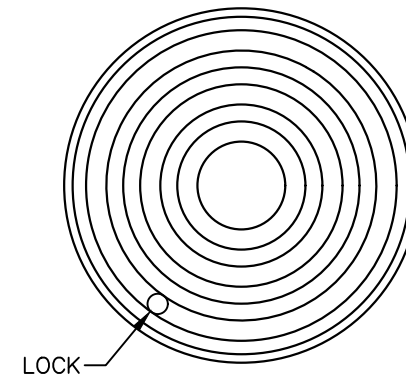
#4 BARS J
N.T.S.



#3 BARS M
N.T.S.



#5 BARS N
N.T.S.



CAST IRON
FRAME AND COVER
N.T.S.

EJ 2790-24, LIGHT DUTY (NON-TRAFFIC)
LOCKING FRAME AND COVER

North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD
DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

2

UPDATE DIMENSIONS OF FRAME AND COVER.

SWL

MAY '20

1

UPDATE PART NUMBER OF FRAME AND COVER.

SWL

MAY '20

NO.

LOCAL EXCEPTION

BY

DATE



STANDARD CONSTRUCTION DETAILS

STORM DRAIN
CURB INLET: REBAR AND M.H. FRAME & COVER

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC.
REFERENCE
502., 702.

STANDARD DETAIL


6020-3

BILL OF REINFORCING STEEL																																		
DEPTH "D"	ALL WIDTHS AND LENGTHS				OPENING LENGTH "L" = 5ft						OPENING LENGTH "L" = 10ft						OPENING LENGTH "L" = 15 ft						OPENING LENGTH "L" = 20 ft											
					Widths "W"				Widths "W"				Widths "W"				Widths "W"																	
					3ft	4ft	5ft		3ft	4ft	5ft		3ft	4ft	5ft		3ft	4ft	5ft															
	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS	BARS
	C	D	E	J	F	F	F	A	B	G	F	F	F	A	B	G	F	F	F	A	B	G	M	N	F	F	F	A	B	G	M	N		
3'-6"	17	3	2	4	20	24	28	10	10	20	28	32	36	18	18	28	36	40	44	26	26	36	2	2	44	48	52	34	34	44	2	2		
3'-9"	18	"	"	"	"	"	"	"	"	20	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"	"	"	44	"	"		
4'-0"	19	"	"	"	"	"	"	"	"	24	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	"	"	48	"	"		
4'-3"	19	"	"	"	"	"	"	"	"	24	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	"	"	48	"	"		
4'-6"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	"	"	50	"	"		
4'-9"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	"	"	50	"	"		
5'-0"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	"	"	50	"	"		
5'-3"	23	"	"	"	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	"	"	52	"	"		
5'-6"	23	"	"	"	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	"	"	52	"	"		
5'-9"	25	"	"	"	"	"	"	"	"	30	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	"	"	54	"	"		
6'-0"	25	"	"	"	"	"	"	"	"	30	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	"	"	54	"	"		
6'-3"	26	"	"	"	"	"	"	"	"	30	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	"	"	54	"	"		
6'-6"	27	"	"	"	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	"	"	56	"	"		
6'-9"	27	"	"	"	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	"	"	56	"	"		
7'-0"	29	"	"	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	"	"	58	"	"		
7'-3"	29	"	"	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	"	"	58	"	"		
7'-6"	30	"	"	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	"	"	58	"	"		
7'-9"	31	"	"	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"	"	"	60	"	"		
8'-0"	31	"	"	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"	"	"	60	"	"		
8'-3"	32	"	"	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"	"	"	60	"	"		
8'-6"	33	"	"	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	54	"	"	"	"	"	"	"	62	"	"		
8'-9"	34	"	"	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	54	"	"	"	"	"	"	"	62	"	"		
9'-0"	35	"	"	"	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	56	"	"	"	"	"	"	"	64	"	"		
9'-3"	36	"	"	"	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	56	"	"	"	"	"	"	"	64	"	"		
9'-6"	37	"	"	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	58	"	"	"	"	"	"	"	66	"	"		
10'-0"	38	"	"	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	58	"	"	"	"	"	"	"	66	"	"		

NOTE:

FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLES ARE IN INCREMENTS OF 3 INCHES BUT ANY DEPTHS OTHER THAN THOSE SHOWN ABOVE MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS FALLING WITHIN THE LIMITS OF THE TABLE MAY BE FOUND BY INTERPOLATION.


North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE	

THE CITY OF COPPELL



STANDARD CONSTRUCTION DETAILS

STORM DRAIN

CURB INLET: BILL OF REINFORCING STEEL

CITY OF COPPELL DALLAS COUNTY, TEXAS


STD. SPEC. REFERENCE 702.

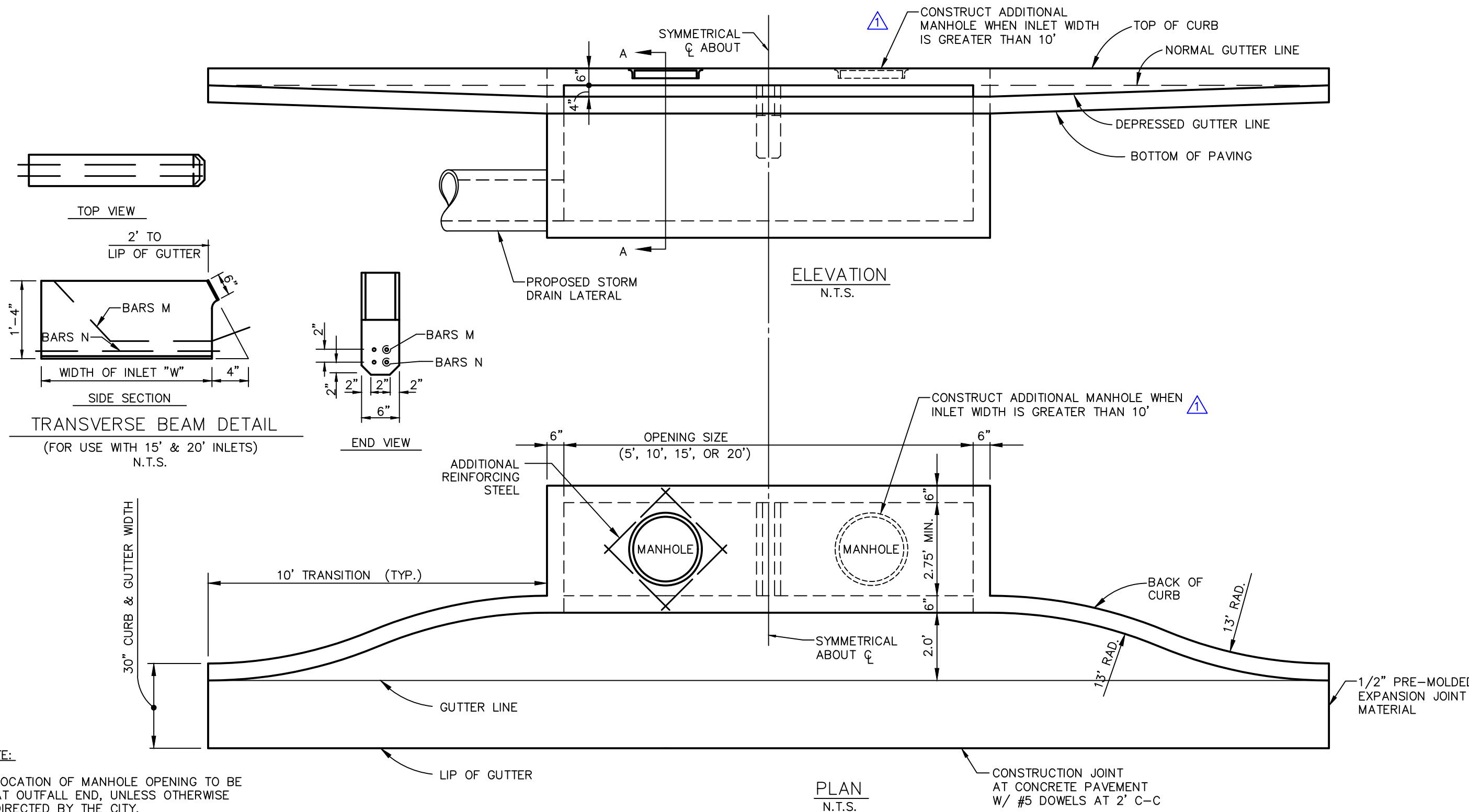
STANDARD DETAIL 6020-4

SUMMARY OF QUANTITIES FOR CURB INLETS																								
DEPTH "D"	5'-0" OPENING						10'-0" OPENING						15'-0" OPENING						20'-0" OPENING					
	WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"		WIDTH 3'-0"		WIDTH 4'-0"		WIDTH 5'-0"	
	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.
3'-6"	2.62	306	2.95	332	3.28	373	4.12	479	4.64	521	5.20	564	5.69	667	6.40	721	7.10	775	7.20	846	8.11	909	9.03	976
3'-9"	2.70	309	3.04	341	3.39	373	4.25	494	4.78	536	5.34	579	5.87	687	6.58	741	7.30	796	7.42	874	8.34	937	9.27	1010
4'-0"	2.78	328	3.14	364	3.49	399	4.38	518	4.92	565	5.49	610	6.05	718	6.77	776	7.49	835	7.64	909	8.58	976	9.51	1046
4'-3"	2.87	334	3.23	370	3.59	406	4.51	526	5.06	573	5.64	619	6.22	729	6.95	787	7.69	847	7.87	922	8.81	990	9.75	1061
4'-6"	2.95	356	3.32	394	3.69	431	4.64	558	5.20	607	5.79	656	6.40	770	7.14	830	7.88	891	8.09	973	9.04	1043	9.99	1115
4'-9"	3.03	361	3.41	410	3.79	438	4.77	566	5.34	616	5.94	665	6.57	780	7.32	841	8.07	903	8.31	986	9.27	1056	10.23	1129
5'-0"	3.12	367	3.51	416	3.90	445	4.90	574	5.47	624	6.09	674	6.75	791	7.51	853	8.27	915	8.53	999	9.50	1070	10.47	1144
5'-3"	3.20	383	3.60	424	4.00	465	5.03	600	5.61	652	6.23	704	6.93	827	7.69	890	8.46	955	8.76	1044	9.73	1118	10.71	1194
5'-6"	3.28	389	3.69	430	4.10	472	5.16	608	5.75	661	6.38	713	7.11	837	7.88	901	8.66	967	8.98	1057	9.97	1131	10.95	1208
5'-9"	3.37	405	3.78	451	4.20	495	5.29	635	5.89	690	6.53	744	7.28	874	8.07	940	8.85	1007	9.20	1102	10.20	1178	11.19	1258
6'-0"	3.45	415	3.88	460	4.30	504	5.42	646	6.03	702	6.68	757	7.45	888	8.25	954	9.05	1022	9.42	1119	10.43	1196	11.43	1276
6'-3"	3.53	425	3.97	470	4.41	515	5.55	661	6.17	718	6.83	773	7.63	908	8.44	975	9.24	1044	9.64	1147	10.66	1223	11.67	1305
6'-6"	3.62	437	4.06	486	4.51	532	5.68	681	6.31	739	6.97	797	7.81	935	8.62	1005	9.43	1057	9.87	1178	10.89	1258	11.92	1340
6'-9"	3.70	441	4.15	490	4.61	537	5.81	688	6.45	747	7.12	806	7.98	945	8.81	1015	9.63	1066	10.09	1191	11.12	1272	12.15	1355
7'-0"	3.78	460	4.25	510	4.71	560	5.94	716	6.59	777	7.27	837	8.16	981	8.99	1053	9.82	1126	10.31	1237	11.35	1319	12.40	1404
7'-3"	3.86	465	4.34	516	4.81	567	6.07	724	6.72	785	7.42	846	8.33	992	9.18	1065	10.02	1138	10.53	1249	11.59	1333	12.64	1418
7'-6"	3.95	477	4.43	529	4.91	570	6.20	742	6.86	804	7.57	866	8.51	1016	9.36	1089	10.21	1163	10.75	1290	11.82	1365	12.88	1451
7'-9"	4.03	491	4.53	544	5.02	597	6.33	762	7.00	826	7.71	890	8.67	1040	9.55	1116	10.41	1193	10.98	1313	12.05	1399	13.12	1498
8'-0"	4.12	496	4.62	550	5.12	604	6.46	770	7.14	834	7.86	899	8.86	1051	9.73	1129	10.60	1205	11.20	1325	12.28	1412	13.36	1510
8'-3"	4.20	504	4.71	559	5.22	613	6.59	784	7.28	849	8.01	915	9.04	1069	9.92	1149	10.80	1228	11.42	1353	12.51	1440	13.60	1529
8'-6"	4.28	519	4.80	576	5.32	632	6.71	804	7.42	871	8.16	938	9.21	1107	10.10	1176	10.99	1257	11.64	1385	12.74	1474	13.84	1565
8'-9"	4.37	528	4.90	586	5.42	643	6.84	819	7.56	886	8.31	954	9.39	1119	10.29	1199	11.18	1280	11.87	1410	12.97	1500	14.08	1592
9'-0"	4.45	545	4.99	605	5.53	664	6.97	842	7.70	912	8.46	982	9.56	1148	10.47	1231	11.38	1313	12.09	1447	13.21	1539	14.32	1631
9'-3"	4.53	554	5.08	614	5.63	674	7.10	858	7.84	929	8.60	999	9.74	1169	10.66	1252	11.57	1335	12.31	1474	13.44	1563	14.56	1660
9'-6"	4.62	568	5.17	630	5.73	692	7.23	878	7.97	950	8.75	1022	9.92	1195	10.84	1280	11.77	1365	12.53	1505	13.67	1600	14.80	1696
10'-0"	4.78	582	5.36	645	5.93	708	7.49	900	8.11	974	9.05	1048	10.27	1227	11.21	1312	12.16	1399	12.98	1546	14.13	1642	15.29	1739

NOTE:
FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLES ARE IN INCREMENTS OF 3 INCHES BUT ANY DEPTHS OTHER THAN THOSE SHOWN ABOVE MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS FALLING WITHIN THE LIMITS OF THE TABLE MAY BE FOUND BY INTERPOLATION.



					STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE 702.
					STORM DRAIN	STANDARD DETAIL 6020-5
					CURB INLET: SUMMARY OF QUANTITIES	
					CITY OF COPPELL DALLAS COUNTY, TEXAS	
NO.	LOCAL EXCEPTION	BY	DATE			



- NOTE:
1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE CITY.
 2. INLETS OVER 10' IN WIDTH SHALL HAVE A MANHOLE OPENING AT EACH END.

North Central Texas Council of Governments



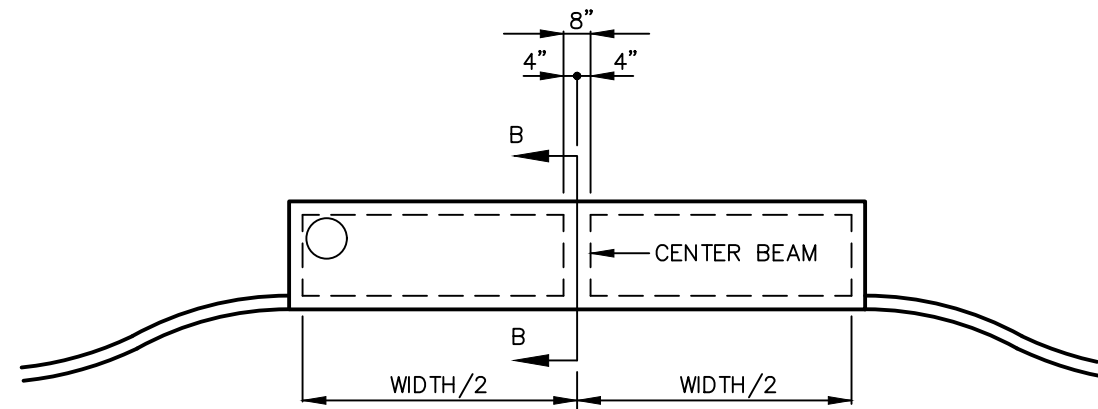
NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

1	ADD NOTE 2 AND ADDITIONAL MANHOLES.	SWL	APR. '20
NO.	LOCAL EXCEPTION	BY	DATE

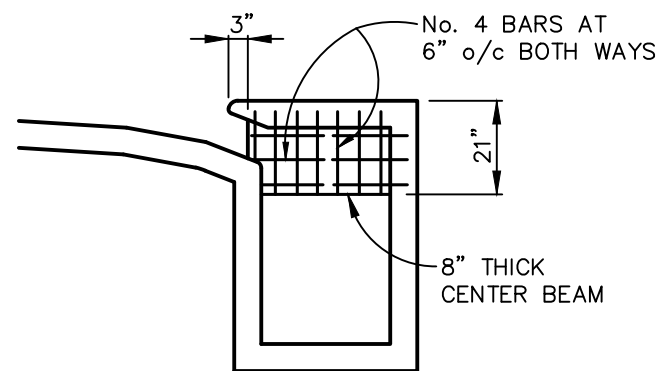


STANDARD CONSTRUCTION DETAILS
STORM DRAIN
RECESSED CURB INLET: 5', 10', 15' OR 20' OPENING
CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
501., 702.
STANDARD DETAIL
6030-1



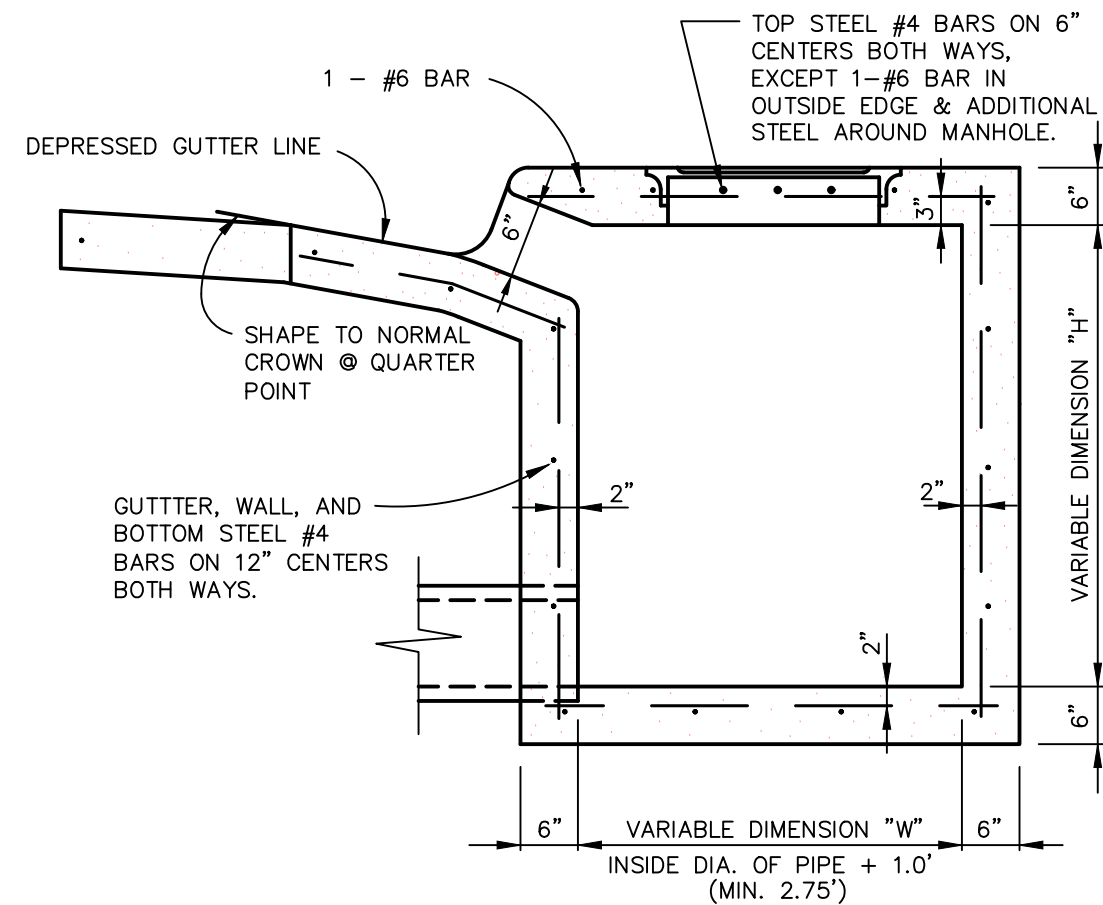
CENTER BEAM FOR
15' AND 20' INLETS
N.T.S.



SECTION B-B
N.T.S.

GENERAL NOTES:

1. ALL CONCRETE SHALL BE CLASS "A" CONCRETE.
2. REINFORCING BARS SHALL BE STANDARD GRADE STEEL, DEFORMED REINFORCING BARS OF A DIAMETER AND LENGTH AS SHOWN.
3. CHAMFER ALL EXPOSED CORNERS 3/4" EXCEPT WHERE OTHERWISE NOTED.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMMODATE STORM DRAIN PIPE.
6. RING AND COVER SHALL BE APPROVED BY THE CITY AND INSTALLED BY THE CONTRACTOR.
7. OUTER WALL OF STRUCTURE SHALL BE CONSTRUCTED USING FORMS, NOT THE VERTICAL WALL OF THE EXCAVATION.



SECTION A-A
N.T.S.

North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.



STANDARD CONSTRUCTION DETAILS

STORM DRAIN

RECESSED CURB INLET: 5', 10', 15' OR 20' OPENING

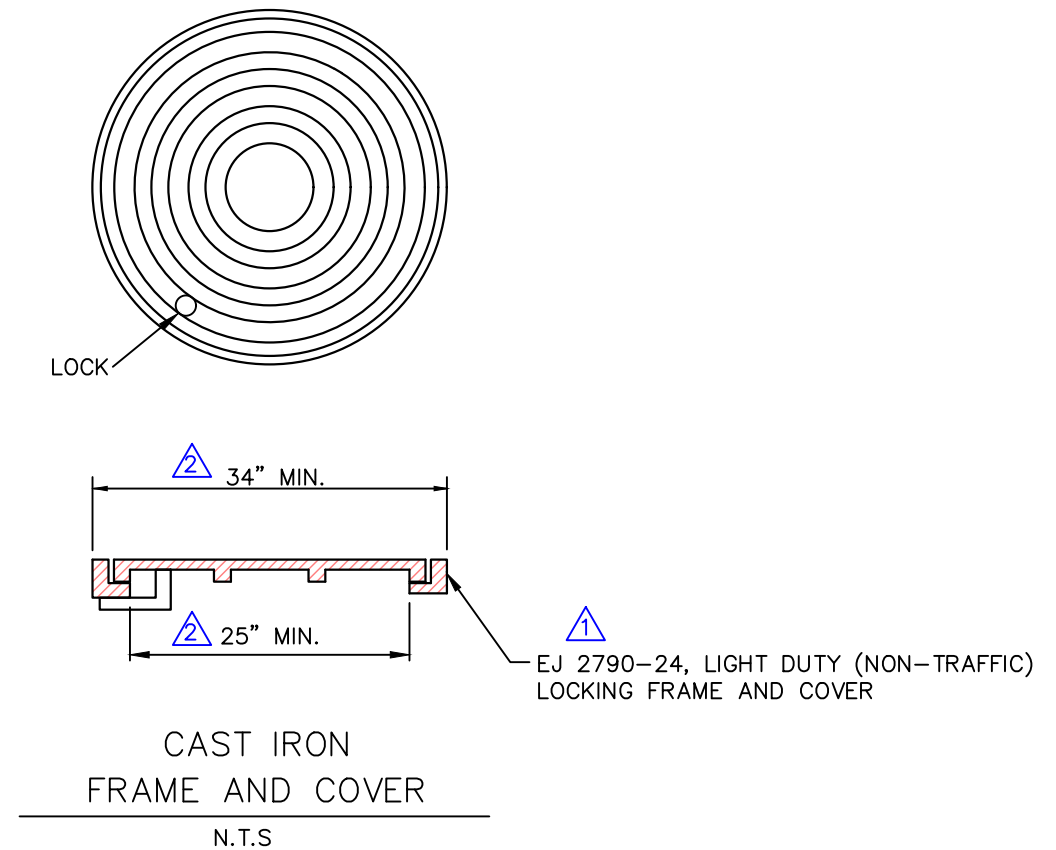
CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC.
REFERENCE
501., 702.

STANDARD DETAIL

6030-2

NO.	LOCAL EXCEPTION	BY	DATE



STD. SPEC.
REFERENCE
501., 702.
STANDARD DETAIL
6030-3

GENERAL NOTES:

- 1
1. IN GENERAL, REINFORCING STEEL SHALL BE #4 BARS ON 12"CENTERS BOTH WAYS FOR GUTTER, BOTTOM SLAB ENDS, FRONT AND BACK WALLS, AND #4 BARS ON 6"CENTERS BOTH WAYS FOR TOP SLAB. AN ADDITIONAL #6 BAR SHALL BE PLACED IN THE FRONT EDGE OF THE TOP SLAB IN THE INLETS, AND ADDITIONAL REINFORCING STEEL SHALL BE PLACED AROUND MANHOLES AS SHOWN.
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. ALL CONCRETE SHALL BE CLASS "A". ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
4. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2" TO THE CENTERS OF THE BARS.
5. 10' OF EXISTING CURB AND GUTTER UPSTREAM AND 10' OF EXISTING CURB AND GUTTER DOWNSTREAM SHALL BE REMOVED AND REPOURED MONOLITHIC WITH EACH INLET.
6. ALL BACK FILL SHALL BE COMPACTED BY MECHANICAL TAMPING TO A DENSITY NOT LESS THAN 90% AS DETERMINED BY STANDARD PROCTOR DENSITY.
7. STORM DRAIN OUTFALL PIPE MAY ENTER ON ANY SIDE, BUT SHALL NOT ENTER AT ANY CORNER, NOR CONFLICT WITH TRANSVERSE BEAM ON 15' AND 20' INLETS

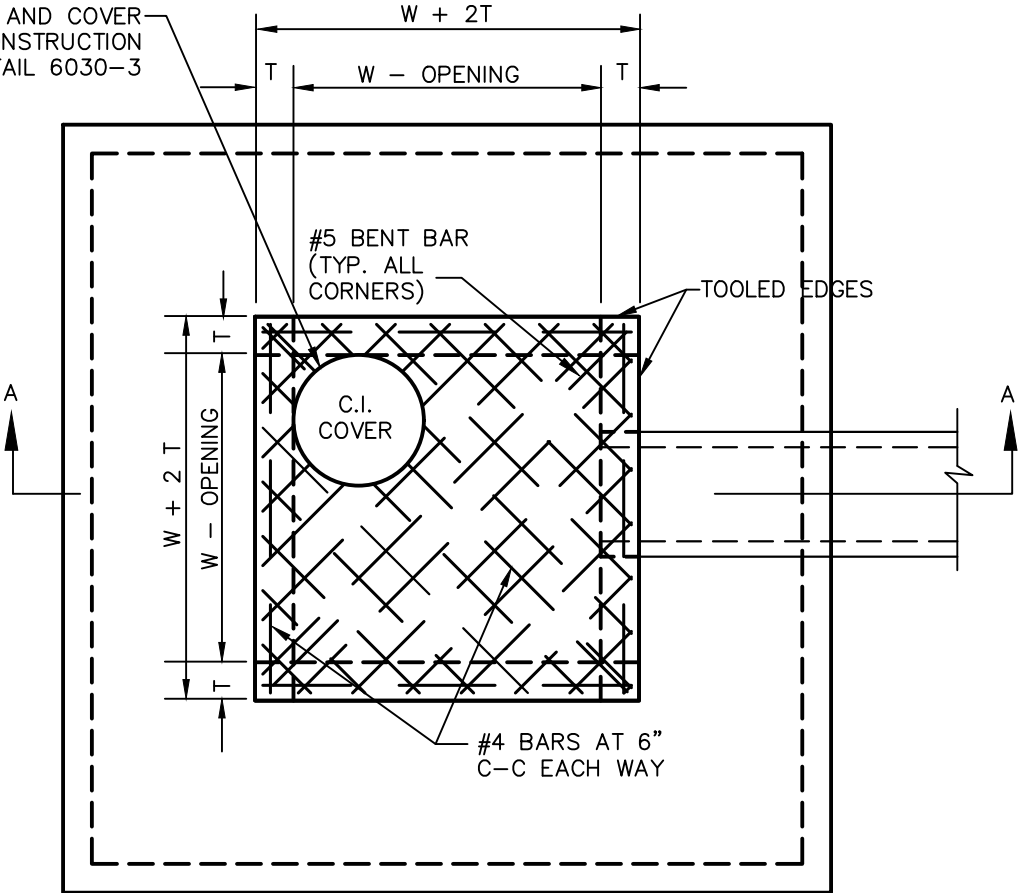
North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

				<div><div>THE CITY OF</div><div>COPPELL</div><div>TEXAS 1890</div></div>	STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE 501., 702.
					STORM DRAIN	
					RECESSED CURB INLET: GENERAL NOTES	STANDARD DETAIL
					CITY OF COPPELL DALLAS COUNTY, TEXAS	6030-4
<div><div>1</div><div></div></div>	ADD NOTE 1.	CMSB	OCT. '19			
NO.	LOCAL EXCEPTION	BY	DATE			

MANHOLE FRAME AND COVER
SEE STANDARD CONSTRUCTION
DETAIL 6030-3



PLAN OF TOP SLAB
N.T.S.

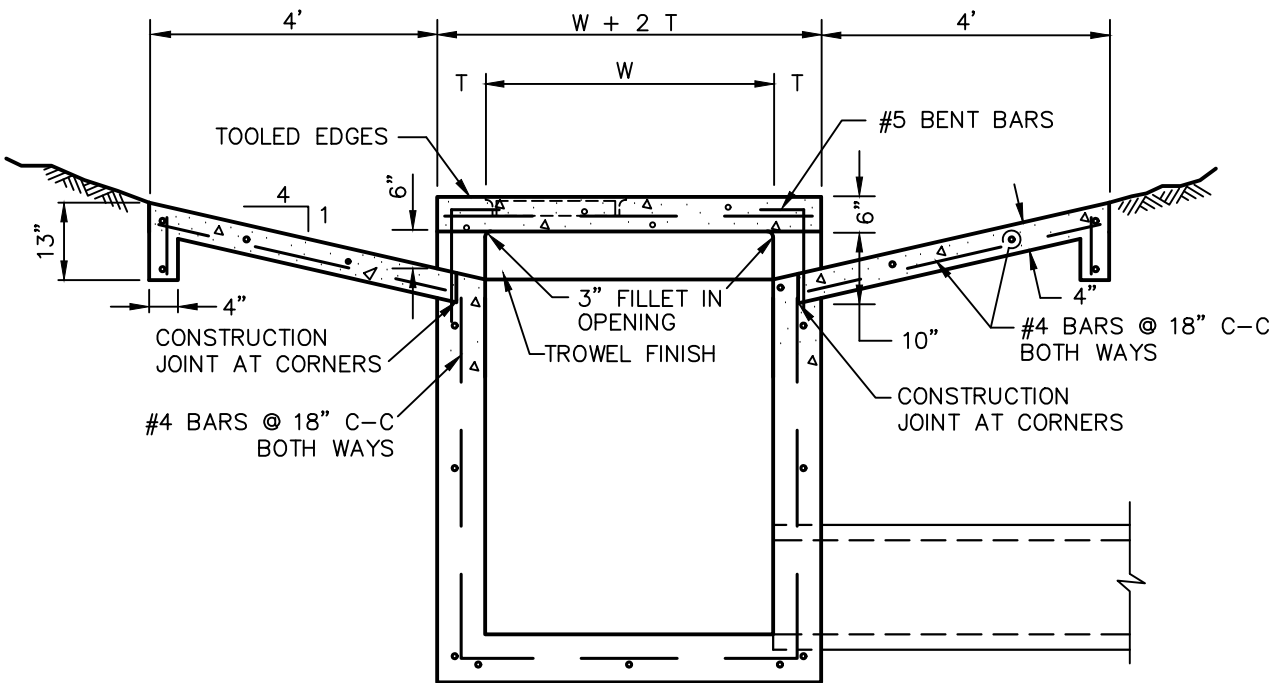
NOTES:

1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES. MINIMUM CLASS "A" CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM FINISHED GRADE TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH WILL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE.
7. OUTER WALL OF STRUCTURE SHALL BE CONSTRUCTED USING FORMS, NOT THE VERTICAL WALL OF THE EXCAVATION.

North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.



SECTION A-A
N.T.S.

INLET SIZE	T	W
2' SQUARE	7"	2'
4' SQUARE	7"	4'
5' SQUARE	8"	5'
6' SQUARE	9"	6'

NO.	LOCAL EXCEPTION	BY	DATE



STANDARD CONSTRUCTION DETAILS

STORM DRAIN
DROP INLET

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC.
REFERENCE
501., 702.

STANDARD DETAIL

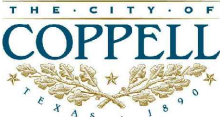
6040

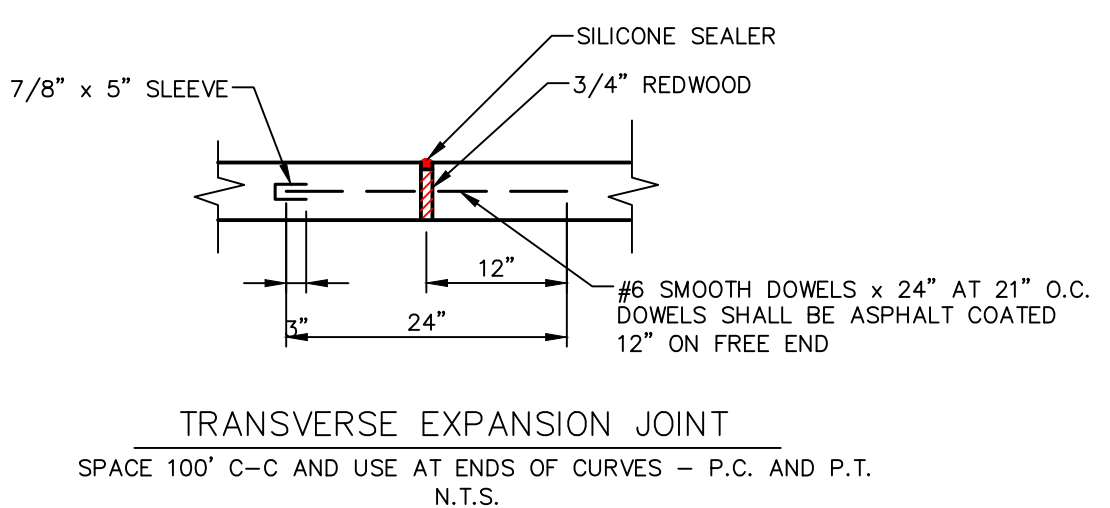
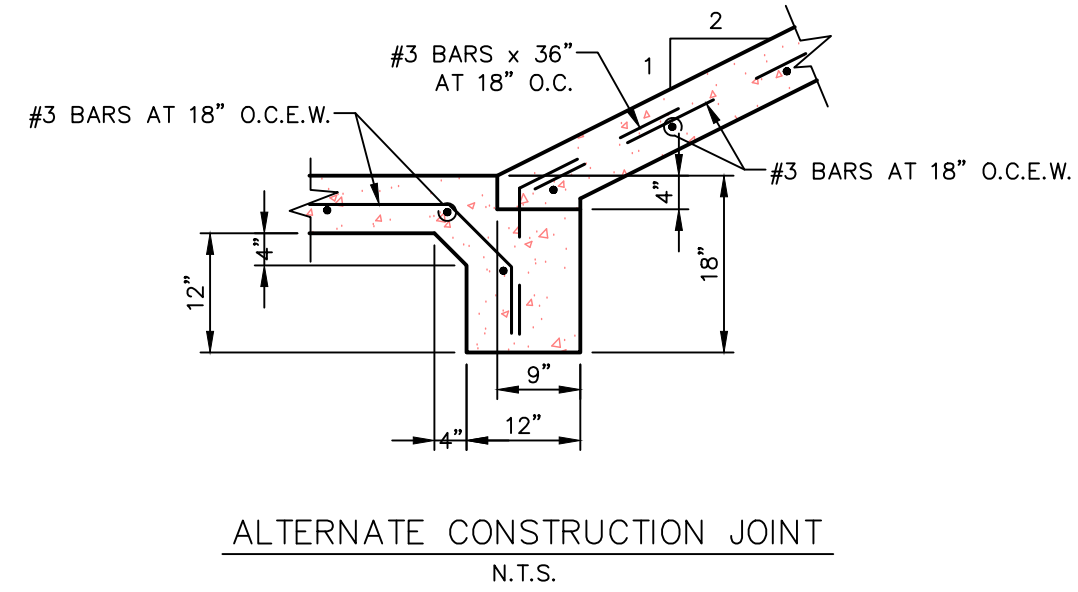
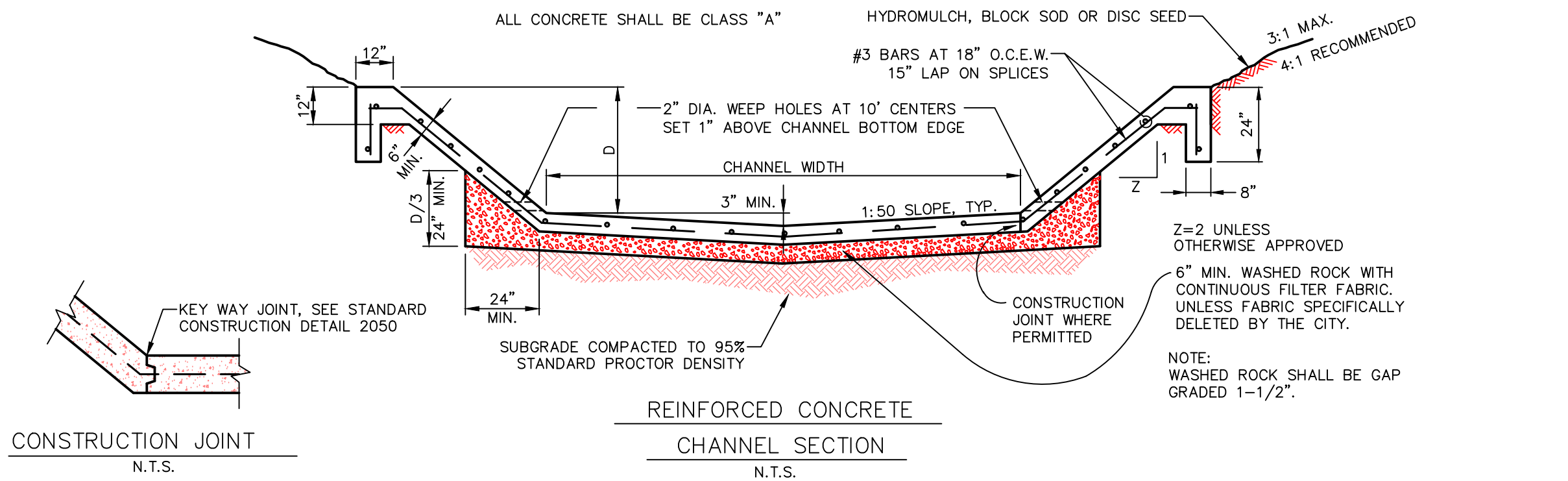
GRATE INLET STRUCTURES WILL BE
APPROVED ON A CASE-BY-CASE BASIS

North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD
DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.


					STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE 303., 501., 702. STANDARD DETAIL 6050
					STORM DRAIN GRATE INLET	
					CITY OF COPPELL DALLAS COUNTY, TEXAS	
NO.	LOCAL EXCEPTION	BY	DATE			

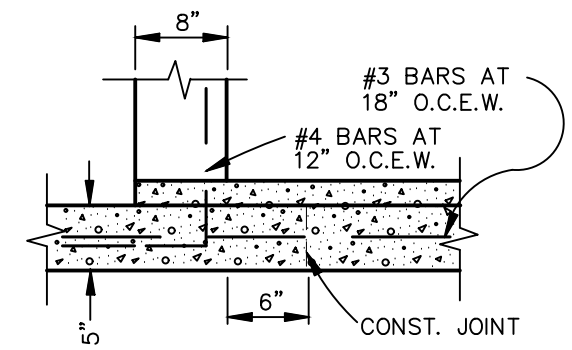
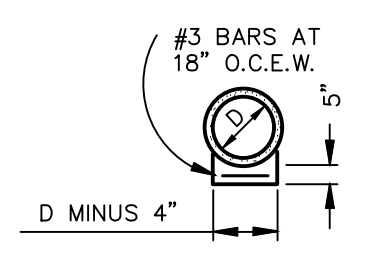
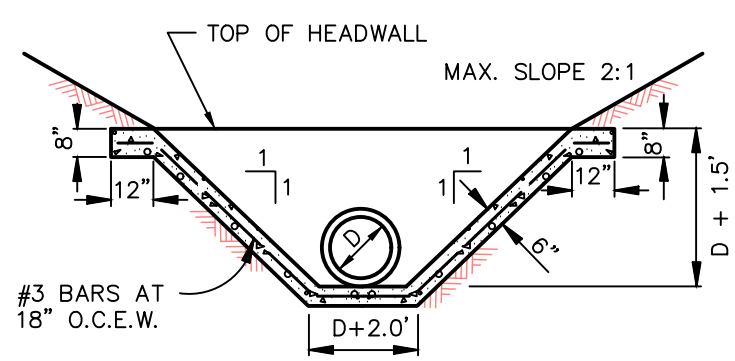
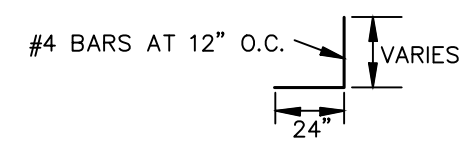
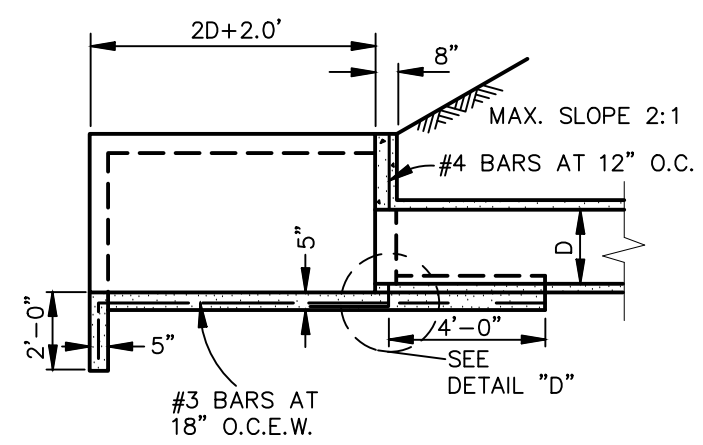
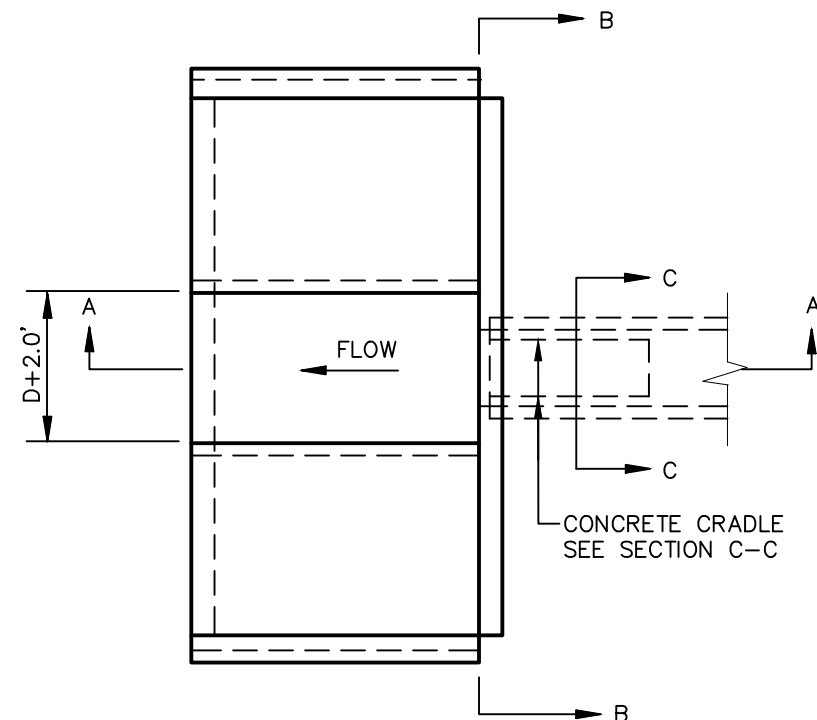


- NOTES:
1. FILL AREAS SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% STANDARD PROCTOR DENSITY.
 2. FULL CHANNEL LINING MAY BE USED ONLY WITH APPROVAL OF THE CITY ENGINEER AND THE ARMY CORPS OF ENGINEERS.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

					STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE 501., 702.
					STORM DRAIN FULL CHANNEL LINING	
NO.	LOCAL EXCEPTION	BY	DATE			



North Central Texas Council of Governments



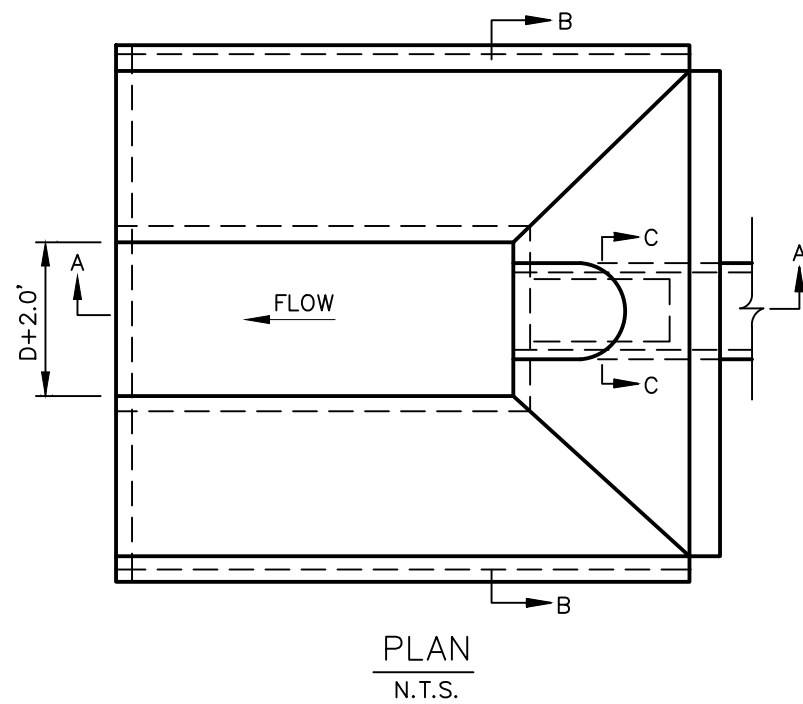
NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE

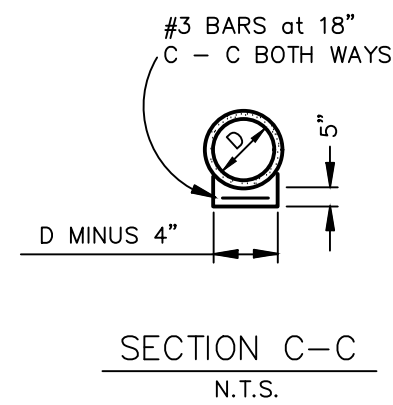
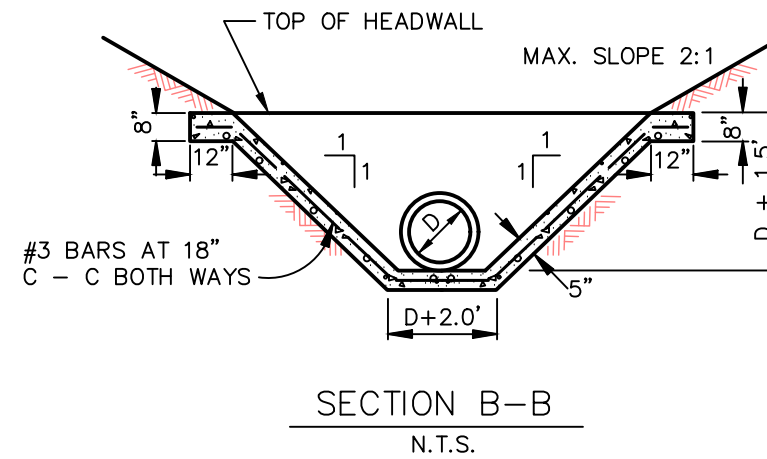
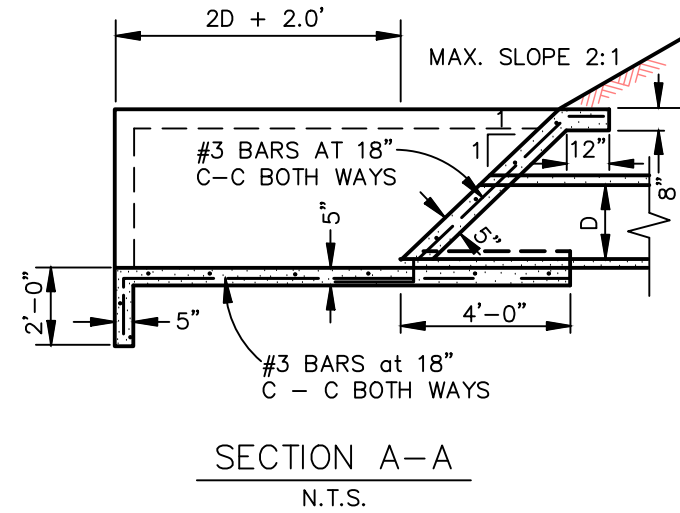


STANDARD CONSTRUCTION DETAILS
STORM DRAIN VERTICAL HEADWALL
CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE 501., 702.
STANDARD DETAIL 6070



NOTE:
CONCRETE SHALL BE CLASS "A".



North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.



STANDARD CONSTRUCTION DETAILS

STORM DRAIN
SLOPING HEADWALL

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC.
REFERENCE
501., 702.

STANDARD DETAIL

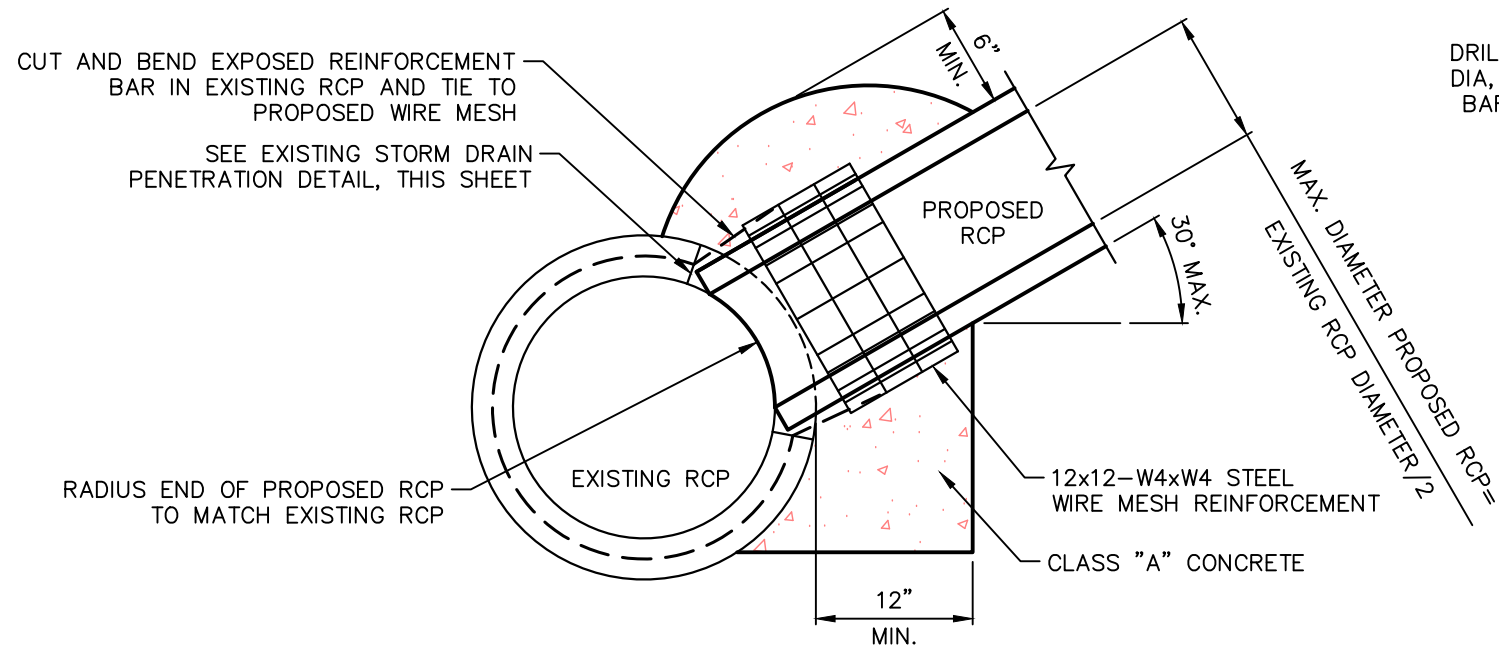
6080

NO.

LOCAL EXCEPTION

BY

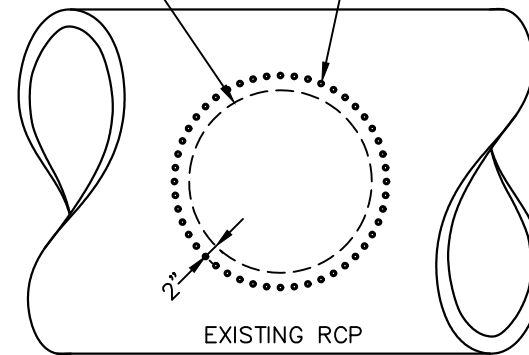
DATE



CONNECTION OF PROPOSED TO EXISTING RCP STORM DRAIN
N.T.S.

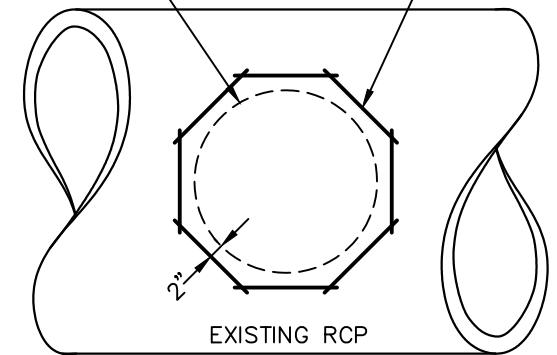
DRILLED HOLES, SPACING EQUAL TO THE DRILL DIA, IN A CIRCULAR PATTERN. REINFORCEMENT BARS IN EXISTING RCP SHALL REMAIN INTACT

OUTSIDE DIAMETER OF PROPOSED RCP



EIGHT SAWCUTS EQUALLY SPACED. REINFORCEMENT BARS IN EXISTING RCP SHALL REMAIN INTACT

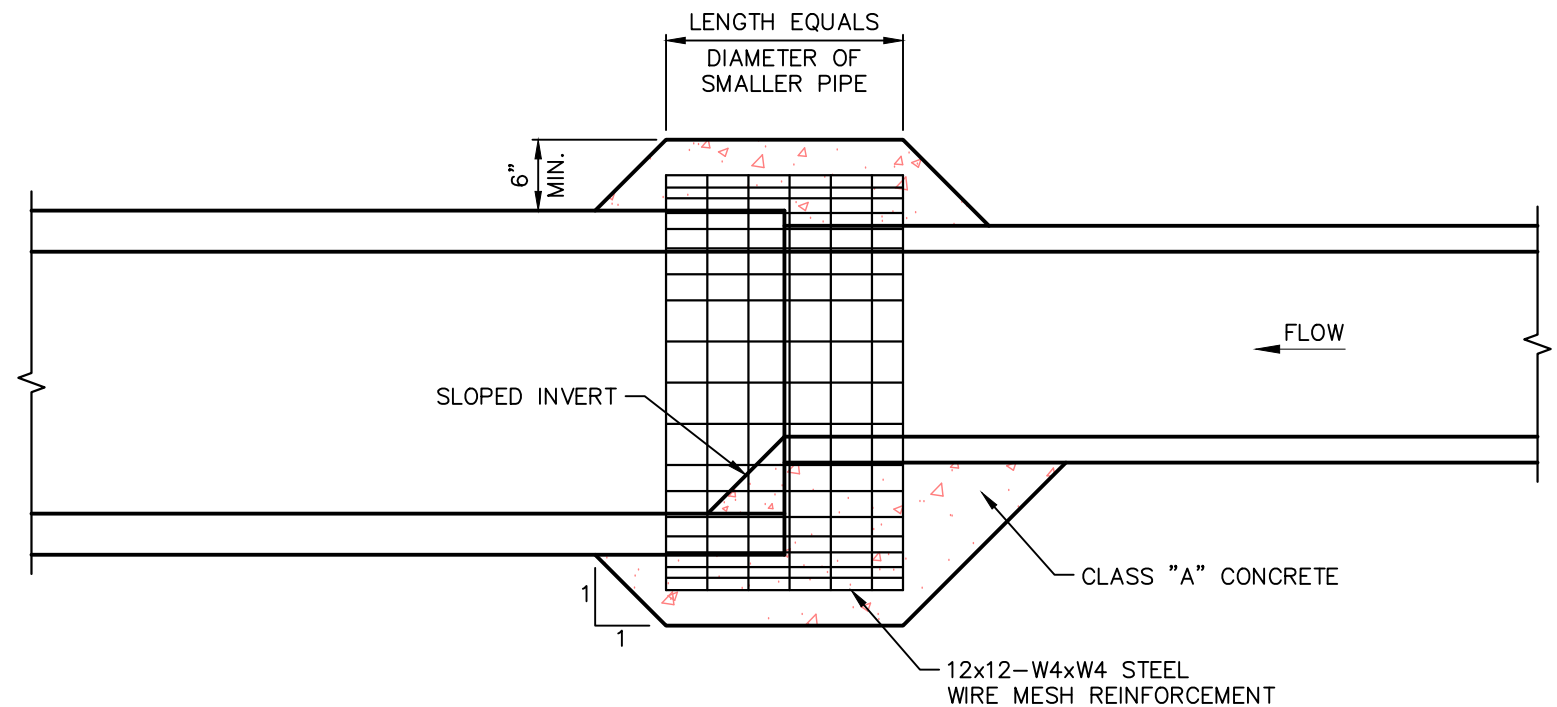
OUTSIDE DIAMETER OF PROPOSED RCP



EXISTING STORM DRAIN PENETRATION METHODS
N.T.S.

NOTES:

1. THE CONNECTION METHODS SHOWN ON THIS DETAIL SHALL ONLY BE EMPLOYED WHEN THE USE OF A PREFABRICATED RCP CONNECTION IS NOT POSSIBLE, AND WITH THE APPROVAL OF THE CITY ENGINEER.
2. NO. 3 BARS ON 6" CTRS. MAY BE USED IN PLACE OF WIRE MESH REINFORCEMENT.



PIPE COLLAR FOR FIELD CONNECTION
N.T.S.

North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.



STANDARD CONSTRUCTION DETAILS

STORM DRAIN

PIPE COLLAR AND FIELD CONNECTION

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC.
REFERENCE
501., 702.

STANDARD DETAIL

6085

NO.	LOCAL EXCEPTION	BY	DATE

STORM DRAIN
GENERAL NOTES AND TESTING

- 1. STORM DRAIN LINE MINIMUM DIAMETER SHALL BE 18". MATERIALS OTHER THAN REINFORCED CONCRETE PIPE (RCP) MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.
- 2. STORM DRAIN LINE INSTALLATIONS MAY BE SUBJECT TO EXFILTRATION TESTING AND LOW PRESSURE AIR TESTING.
- 3. STORM DRAIN LINE INSTALLATIONS MAY BE SUBJECT TO A TV EXAMINATION. A COPY OF SAID EXAMINATION SHALL BE PROVIDED TO THE CITY FOR REVIEW PRIOR TO ACCEPTANCE OF THE STORM DRAIN LINE BY THE CITY.
- 4. STORM DRAIN LINE EMBEDMENT SHALL BE IN ACCORDANCE WITH THE CITY OF COPPELL STANDARD CONSTRUCTION DETAILS FOR STORM DRAIN LINE EMBEDMENT.
- 5. ALL RCP AND BOX CULVERT STORM DRAIN PIPE SHALL HAVE "RAMNEK" JOINT GASKETS AND MANUFACTURER PRIMED SEALING SURFACES.
- 6. ALL OUTFALL STRUCTURES SHALL BE BOUNDED BY A MIN. OF 20 SY GROUTED RIP-RAP.

North Central Texas Council of Governments



NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

					STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE
					STORM DRAIN GENERAL NOTES AND TESTING	
					CITY OF COPPELL DALLAS COUNTY, TEXAS	STANDARD DETAIL 6090
NO.	LOCAL EXCEPTION	BY	DATE			